

What is claimed is:

- 1 1. A method of disintegrating biofilm, flocculent bulked sludge or bulked
2 biologically active sludge in an aqueous system, which comprises adding to or
3 forming in said aqueous medium containing biofilm, flocculent bulked sludge or
4 bulked biologically active sludge one or more chlorinated hydantoins in an amount
5 sufficient to form a concentration of from about 0.01 to 100 ppm (expressed as Cl₂) of
6 such chlorinated hydantoins in said aqueous medium.
- 1 2. The method of claim 1, wherein the chlorinated hydantoin is
2 monochlorodialkylhydantoin, dichlorodialkylhydantoin or a mixture thereof, wherein
3 the alkyl group contains from 1 to 6 carbon atoms.
- 1 3. The method of claim 2, wherein the chlorinated hydantoin is
2 monochlorodimethylhydantoin, dichlorodimethylhydantoin, or a mixture thereof.
- 1 4. The method of claim 1, wherein the chlorinated hydantoin is added to
2 the aqueous medium as a solution or an aqueous slurry.
- 1 5 The method of claim 1, wherein the chlorinated hydantoin is added to
2 the aqueous medium as a solid.
- 1 6 The method of claim 1, wherein the treated aqueous medium is
2 exposed to sunlight.
- 1 7 The method of claim 1, wherein the chlorinated hydantoin is formed *in*
2 *situ* by adding to the aqueous medium chlorine from a chlorine source and an
3 alkylated hydantoin in a molar ratio of chlorine to alkylated hydantoin of from 1:100
4 to 100:1.
- 1 8. The method of claim 7, wherein the molar ratio of chlorine to alkylated
2 hydantoin of from 1:10 to 10:1.
- 1 9. The method of claim 1, wherein the aqueous medium contains biofilm
2 adhering to a substrate.

1 10. The method of claim 1, wherein the chlorinated hydantoins are added
2 with performance additives.

1 11. The method of claim 10, wherein the performance additives are
2 dispersants, biodispersants, scale control agents, corrosion inhibitors, surfactants,
3 biocides, cleaning agents, and mixtures thereof.

1 12. The method of claim 1, wherein the aqueous system is a cooling water
2 system, a pulping or papermaking system, an air washer system, an agricultural
3 potable and drainage system, a food preparation or cleaning system, an oil industry
4 system, a potable water system, a household water-related system, or an institutional
5 water-related system.

1 13. A method of removing biofilm from a substrate in an aqueous medium
2 which comprises: adding to or forming in said aqueous medium
3 monochlorodimethylhydantoin, dichlorodimethylhydantoin, or a mixture thereof in an
4 amount of from about 0.05 to 25 ppm (expressed as Cl₂) of such chlorinated
5 hydantoins.

1 14 The method of claim 13, wherein the chlorinated dimethylhydantoin is
2 formed *in situ* by adding to the aqueous medium chlorine from a chlorine source and
3 dimethylhydantoin in a molar ratio of chlorine to dimethylhydantoin of from 1:10 to
4 10:1.

1 15. The method of claim 14, wherein the chlorine source is sodium
2 hypochlorite or gaseous chlorine.

1 16. A method of disintegrating flocculent bulked sludge or bulked
2 biologically active sludge present in an aqueous medium which comprises: adding to
3 or forming in said aqueous medium monochlorodimethylhydantoin,
4 dichlorodimethylhydantoin, or a mixture thereof in an amount of from about 0.05 to
5 25 ppm (expressed as Cl₂) of such chlorinated hydantoins.

1 17 The method of claim 16, wherein the chlorinated dimethylhydantoin is
2 formed *in situ* by adding to the aqueous medium chlorine from a chlorine source and
3 dimethylhydantoin in a molar ratio of chlorine to dimethylhydantoin of from 1:10 to
4 10:1.

1 18. The method of claim 17, wherein the chlorine source is sodium
2 hypochlorite or gaseous chlorine.